

AMENDMENTS TO THE CLAIMS

The following listing of claims replaces all prior versions and listings of claims in the application.

LISTING OF CLAIMS

1. (Currently Amended) A semiconductor device comprising:

a base including a semiconductor material, the base having a source region, a drain region and a channel region disposed between the source region and the drain region;

a gate insulating ~~material~~film disposed in contact with the channel region of the base; and

a gate electrode disposed on the gate insulating ~~material~~film;

~~the gate insulating material including silicon, oxygen, either hydrogen or deuterium, and at least one other element~~film being composed of silicon oxide including either hydrogen or deuterium, and nitrogen,

the nitrogen being diffused to the gate insulating film so as to reduce the hydrogen or the deuterium residing in the vicinity of an interface between the gate insulating film and the channel region of the base,

the gate insulating ~~material~~film having a first region where B/A is in a range of 1.6 to 10 or less, a concentration of the nitrogen ~~at least one other element~~ in the first region being defined as A, ~~and~~ a concentration of the hydrogen or deuterium in the first region being defined as B, and

~~the gate insulating material having a second region where D/C is 1.6 or more, a concentration of the at least one other element in the second region being defined as~~

~~C, and a concentration of the hydrogen or deuterium in the second region being defined as D,~~

the ~~second region is~~ being located at a portion of the gate insulating material film at a distance ~~in toward~~ a thickness direction of $Y/10$ of the gate insulating material film from ~~an the interface between the channel region of the gate insulating material and the base~~, Y being an average thickness of the gate insulating material film.

2-4. (Cancelled)

5. (Currently Amended) The semiconductor device as claimed in claim 1, wherein the concentration of the hydrogen or deuterium and the concentration of the nitrogen ~~at least one other element~~ are measured by Secondary Ion Mass Spectrometry.

6. (Cancelled)

7. (Currently Amended) The semiconductor device as claimed in claim 1, ~~wherein the gate insulating material is formed into a gate insulating film and the~~ average thickness of the gate insulating film is 10 nm or less.

8 - 9. (Cancelled)

10. (Previously Presented) The semiconductor device as claimed in claim 7, wherein the maximum leakage current passing through the gate insulating film in the thickness direction thereof that is measured in a state that the gate voltage is applied to the electrode so that the electric field intensity in the gate insulating film is 3 MV/cm or less is 2×10^{-8} A/cm² or less.

11-12. (Cancelled)

13. (Original) An electronic device comprising the semiconductor device defined by claim 1.

14. (Original) An electronic apparatus comprising the electronic device defined by claim 13.

15. (Cancelled)

16. (New) A semiconductor device comprising:

a base including a semiconductor material, the base having a source region, a drain region and a channel region disposed between the source region and the drain region;

a gate insulating film disposed in contact with the channel region of the base; and

a gate electrode disposed on the gate insulating film;

the gate insulating film being composed of silicon oxide including either hydrogen or deuterium, and at least one other element selected from a group comprising carbon, aluminum, hafnium, zirconium and germanium,

the gate insulating film having a region where B/A is in a range of 1.6 to 10, a concentration of the at least one other element in the region being defined as A, a concentration of the hydrogen or the deuterium in the region being defined as B,

the region being located at a portion of the gate insulating film at a distance toward a thickness direction of $Y/10$ of the gate insulating film from an interface between the gate insulating film and the channel region of the base, Y being an average thickness of the gate insulating film.